

## ABSTRACT

A system for characterizing optical properties of a device under test (DUT) uses an expanded local oscillator signal to perform multiple parallel interferometric measurements. In one system, the expanded local oscillator signal is optically connected to a lens array. The lens array focuses the expanded swept local oscillator signal into multiple beams. The multiple beams are then used in multiple parallel interferometric measurements. The multiple beams may be used as the reference beams or applied to the DUT and used as the test beams depending on the application. The test beams and reference beams are combined to perform the interferometric measurements. In another system, a portion of the expanded local oscillator signal is applied directly to a DUT as the test beam while another portion of the expanded local oscillator signal is used for the reference beam.